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FACT SHEET

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FIREWOOD FOR THE HOME

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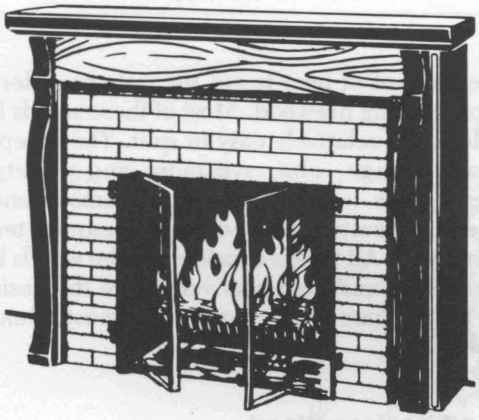


Wood as a fuel has become increasingly important as prices of other energy sources rise. Many types of wood are sold as fuel. Recently many types of stoves and fireplace units for home heating have reached the market. Wood sales to homeowners provide a livelihood for thousands of individuals each year who cut, market and deliver firewood. This publication answers some of the more common questions on firewood purchasing and briefly describes the types of burning units.

Types of Units

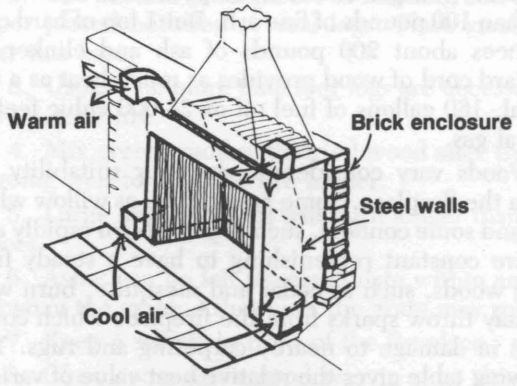
A properly constructed fireplace can supply large amounts of radiant heat to the room in which it is located, but helps little in heating the rest of the house. Likewise, it can be helpful to have a fireplace available for emergency use when storms or other causes interrupt the normal heating source.

As a complete heating source, however, fireplaces are rather inefficient. Most of the heat from the fire, plus large amounts of air already warmed by the home's central heating system, is lost because the wide opening of the fireplace allows room air to be drawn into the chimney and discharged to the outside atmosphere. A warm chimney will draft 500-600 cubic feet of air per minute, which means that all of the air in a 1,600 square-foot house would be replaced in about 25 minutes. A great amount of the heat loss also will occur after the fire has diminished for the evening because the chimney damper must be left open until the fire is completely out. This loss normally far exceeds the heat gained from radiant energy when the fire was burning. Placement of glass doors over the opening or supplying an outside air source will improve the efficiency of a standard fireplace.

Efficiency of wood burning can be increased by use of fireplaces with metal liners. From these types, some of the heat normally lost up the chimney is reclaimed by the metal and the air is heated and discharged to the room through a top vent. These units also are more efficient with glass doors and outside air sources.

In addition to the standard fireplace units, fireplace stoves are available that fit into an existing fireplace or attach to a piece of metal that fits over the face of the fireplace. These stoves allow draft control by means of a damper and can increase efficiency considerably over an open fireplace.

Modern wood burning stoves are becoming readily available in hundreds of models. They vary considerably in design and efficiency. Care must be taken in selecting one of these units. For example, some of the better designed units can be more than five times as efficient as an open fireplace and approach the efficiency of gas or oil heating units.



Double wall metal firebox.

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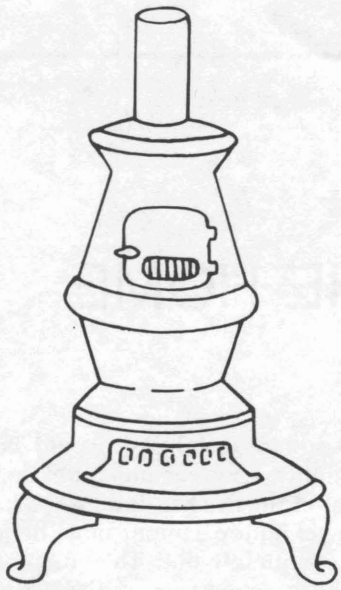


One of many types of cast-iron pot stoves.

Installation of fireplaces, stoves and chimneys requires expert knowledge. Only trained individuals should attempt to do this. Dangerous situations could develop. There are requirements for minimum distances from walls and floors, and certain requirements for chimney installation. Local fire codes as well as the insurance company should be consulted before any installation is attempted.

Wood Characteristics

Wood as a fuel has several advantages. It provides clean, almost pollution-free combustion; it is easy to ignite; it is readily available; it has a low energy requirement for production and requires no special facilities for storage. The wood ash can be used as a garden fertilizer. However, wood does require a large amount of space.

One standard cord of dense hardwood, such as oak or hickory, weighs about 4,000 pounds and produces less than 100 pounds of fine ash. But 1 ton of hard coal produces about 200 pounds of ash and clinker. A standard cord of wood provides as much heat as a ton of coal, 160 gallons of fuel oil or 24,000 cubic feet of natural gas.

Woods vary considerably in their suitability for use in the fireplace. Some types, such as willow when dry, and some conifers, such as pine, burn rapidly and require constant replenishing to have a steady fire. Some woods, such as cedar and mesquite, burn well but may throw sparks from the fireplace which could result in damage to nearby carpeting and rugs. The following table gives the relative heat value of various species of wood grown in Texas.

Table 1. Relative heat values of selected woods

Very High	High	Medium	Low
Live oak	Water hickory	Ash	Ponderosa pine
Osage-orange	Mesquite	Elm	Cottonwood
Hickory	Red oak	Walnut	Willow
Dogwood	Beech	Birch	
Pecan		Cherry	
White oak		Soft maple	
		Sycamore	
		Sweetgum	
		Southern pine	
		Redcedar	
		Baldcypress	

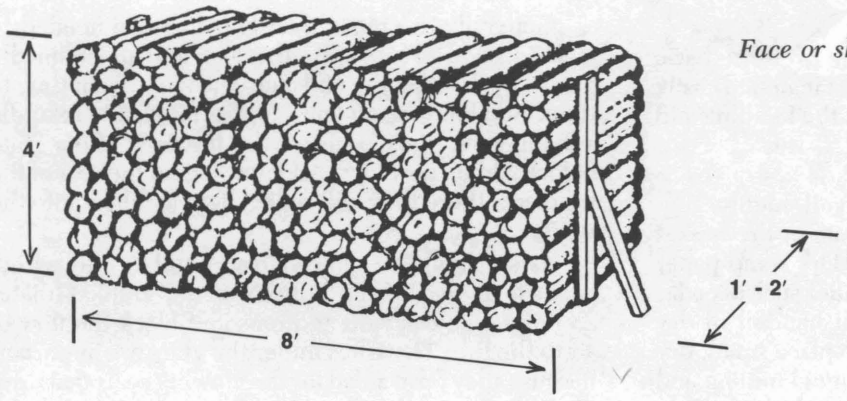
The amount of heat is not the only consideration when purchasing firewood. Most of these woods listed in Table 1. are relatively easy to split. The exceptions are osage-orange, elm, sycamore and sweetgum. Southern pines tend to have heavy smoke and, as stated earlier, eastern redcedar and mesquite tend to spark and pop. All things considered, the woods listed with very high and high heat values are the desirable woods to purchase and are generally most often sold by dealers.

Buying Fireplace Wood

The average homeowner usually purchases wood from a local vendor. Firewood is sold by a confusing array of measurement units. The accepted (and in some places the only legal) unit of measurement is the cord. The standard cord is a well-stacked pile of wood cut into 4-foot lengths and stacked 4 feet high by 8 feet long or 128 cubic feet. This results in a volume of actual wood of 80 cubic feet with the rest being air space between the pieces of wood. Stacks that have crooked sticks, protruding knots or excessive decay have less than 80 cubic feet of solid wood, while those with straight pieces have more.

Since homeowners seldom can use wood in 4-foot lengths, it often is sold by the face cord or fraction of a face cord. A face cord is a pile of wood 4 feet high and 8 feet long and cut to any length, generally about 16 to 18 inches. Normally there are about 2 to 3 face cords per standard cord. Most advertisements in newspapers refer to the price of wood per cord, but actually mean the price per face cord.

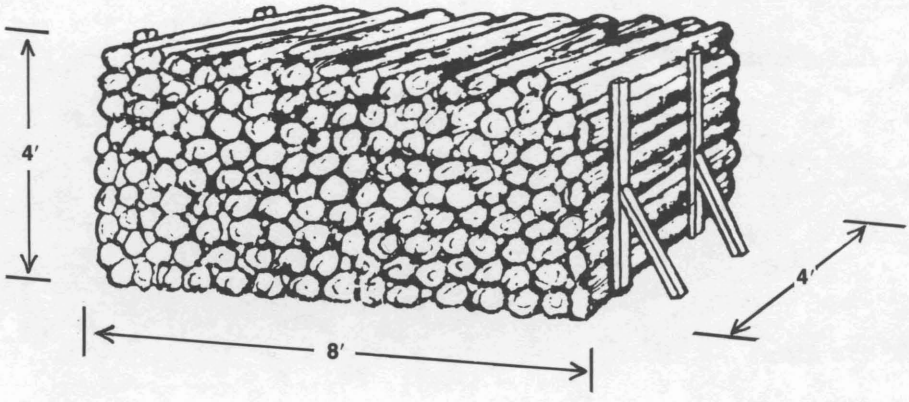
Firewood often is sold by the "truckload." A pick-up truck will normally hold about a third of a standard cord or about one face cord of wood if the wood is stacked properly in the truck. Often wood purchased this way is dumped, and the homeowner has to stack it. Stack the wood so you can estimate how much wood you have purchased. Multiply the length by width by height in feet and divide by 128 to find what portion of a standard cord you received.



Face or short cord.

Total volume = 128 cu. ft.

Standard cord.



For example: a stack 8 feet long by 4 feet high by 18 inches long would be about a third of a standard cord or a typical face cord. (4′ × 8′ × 1.5′ = 48 cu. ft.; 48 ÷ 128 = .37 cords).

When buying wood to burn immediately, make sure it is dry. Most species of wood burn rather poorly when freshly cut. The surest way to burn dry wood is to purchase it several months before use. Wood can be dried by stacking it outside for 3 to 5 months prior to use. Splitting will hasten drying. Since freshly cut wood splits more easily than seasoned wood, it should be done as soon as possible.

Avoid buying wood that is heavily infested with insects, such as powder-post beetles or wood decay fungi. These insects and decay organisms may invade the home if the wood is left in the house for an extended length of time. Wood infested with insects or decay should be brought in and placed directly on the fire rather than stored inside.

Hints on Burning Wood

1. *Do not* use a flammable liquid, such as gasoline, oil or charcoal lighter to start a fire.

2. Use several small pieces of kindling and newspaper placed between several logs. Place small logs over this base.

3. Usually no more than four logs are necessary to have a good fire.

4. Mix green wood with dried wood after the fire is going well to hold the fire longer.

5. Large unsplit pieces will burn longer than split pieces.

6. Ashes can be left to accumulate within an inch or two of the grate. Ashes over the grate may ruin it.

7. Keep a screen in front of the fireplace.

8. Glass doors are a good way to slow down air loss from a house through a fireplace opening.

How to Build a Better Fire

There are many ways of building a fire. The basic principle to be aware of is that you set a match to easily ignitable tinder, which in turn ignites the kindling and then ignites the larger firewood.

The following method has proved highly successful. Place two logs on the iron grate or fire basket and place the tinder between them. Dry scrap paper may be more readily available than tinder such as cedar bark. Next, place above this a small handful of dry twigs or split softwood kindling. Then place small, dry logs over this base. A tepee formation of kindling and small branch wood will ease your fire through early combustion stages until the logs are aglow. Place the logs close together. The narrow air spaces between them promote better drafts. The heat reflected between adjacent surfaces aids in raising and maintaining combustion temperatures.

Generally, no more than four logs are needed to make a good fire. Adjust the logs and maintain the flames by pushing the ends into the flame from time to time. Add kindling and new logs as needed to rekindle a dying glow. Rake coals toward the front of the grate before adding new logs. Add new logs at the rear of the fireplace; there they will reflect light and heat into the room.

Ashes should be allowed to accumulate only within an inch or two of the bottom of the grate. Greater accumulation can ruin andirons and block the flow of air to the fire. The ashes under the grate are important because they form a bed for the glowing coals that drop through the grate. They concentrate heat and direct drafts of air up to the base of the fire. These excess ashes also can be used to cover burning logs when needed to check a flaming fire. A fire "banked" with ashes in this way will hold glowing coals for 8 to 10 hours, making it easier to rekindle the flames.

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